SUCTION SYSTEM

RAIN3 model

Installation & User's Manual

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INSTRUCTION WARNING AND CAUTION PLEASE READ BEFORE OPERATION

While reading your manual, please pay close attention to areas labeled:
WARNING AND CAUTION.
The description of each is found below.

WARNING

Warnings are given where failure to observe instruction could result in injury to people.

CAUTION

Cautions are found where failure to observe the instruction could result in damage to the equipment, associated equipment and process.

The following symbols of warning will be found on the pump.

- Explanation of Symbols

Caution / Warning – Refer to accompanying documents

Electrical shock – Attached label at the product

Hot surface – Attached label at the product

Section 1: SAFETY INFORMATION

1.10 Caution: To prevent injury...

1.11 Never operate this product if it has a damaged cord or plug. If it is not working properly, has been dropped, damaged or has fallen into water, please contact appropriate service center for examination and repair.

1.12 Keep the cord away from heated surfaces. All electrical products generate heat. To avoid serious burns, NEVER touch suction motor during or immediately after operation. The temperature of suction motor cab be reached 120℃.

1.13 Never block any air exhaust valve or place it on a soft surface where the openings may be blocked. The air exhaust valve is for ventilation of the motor inside the housing. Keep the air exhaust valve free of lint, dirt and other foreign objects.

Blocking air exhaust valve can cause the product to overheat and fire.

1.14 Never drop or insert fingers or any other object into any openings.

1.15 Use only in well ventilated areas. The motor on all product are totally enclosed fan cooled.

WARNING

Do not operate the pumps in an atmosphere containing flammable or explosive gases/vapors.

1.16 Be sure to properly identify intake and discharge before using machine.

1.17 Protect Unit from contaminants and moisture.

WARNING

Remove plug from air exhaust port before using.

1.20 Caution: To Reduce Risk Of Electrical Shock...

1.21 Do not disassemble. Disassembly or attempted repairs if accomplished incorrectly can create electrical shock hazard. Refer servicing to qualified service agencies only.

1.22 Do not use this product in or near area where it can fall or be pulled into water or other liquids.

1.23 Do not reach for this product if it has fallen into liquid. Unplug immediately.

1.24 Never operate this product outdoors in the rain or in a wet area.

1.30 Danger: To Reduce Risk of Explosion or Fire...

1.31 Do not use this unit in or near explosive atmospheres or where aerosol (spray) products are being used.

1.32 Do not use this product near flames.

1.40 Classification

- Class I equipment
- Ordinary equipment (IPXO)
- Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
- Continuous operation.

This equipment has been tested and found to comply with the limits for medical devices in IEC 601-1-2:1994. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity.

However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to other devices, which can be determined by turning the equipment off and on, the user is encourage to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving device
- Increase the separation between the equipment.
- Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.
- Consult that manufacturer or field service technician for help.

Section 2: INSTALLATION NOTES

2.10 Environmental Conditions

The Pump is rated for indoor use only. Maximum altitude 2000 meters. Operating temperature range 10°C to 40°C. Maximum relative humidity of 80% for temperatures up to 31°C decreasing to 50% at 40°C. Rated for +/-10% of supply voltage. Pollution Degree 2, Installation Category II.

2.11 Introduction

This manual has been compiled not only for the care and maintenance of the suction system now in your possession, but as a helpful reference and guide to prevent many problems which can occur if used improperly.

2.12 Unpacking

Carefully remove the machine from the shipping case. Preserve all paperwork for future reference. If damage has occurred from shipment a claim must be filed with the carrier immediately; preserve the shipping carton for inspection by the carrier. If you are required to communicate with your dealer, be sure to include your order numbers for quick identification.

2.13 Mounting

Rubber feet are attached to the product. Rubber feet are excellent for applications involving a semi-flexible surface such as a bench top; they help to isolate noise and eliminate creeping. However, the horizontal position of the motor shaft should be preferred.

2.14 Installation Location

The suction system should be located preferably in a clean, dry and well ventilated area. Please be sure not to block the ventilation ports located on the motor housing. The unit should be placed where the surrounding temperature remains between 10°C and 40°C (50°F and 104°F). Always check to insure the location chose is protected from direct or indirect moisture contact.

Place suction outlet valve higher position than drainage to prevent backflow problem

2.15 Hose connection

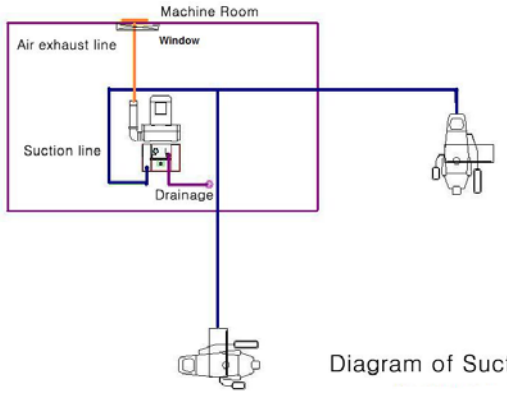


Diagram of Suction tubing

Please be sure not to be bended any of suction inlet hose and outlet hose. This can causes loosing vacuum power or damage of suction motor. Also use exhaust air hose with 38mm diameter hose.

Exhaust air temperature increases significantly and discharge drastically too hot for most plastic piping. Therefore, metal piping or heat-resistant pipe is recommended for at least the first five (5) to eight(8) feet (1.5 ~ 2.5 meters) from the air exhaust valve on the discharge side. In addition, this piping MUST be guarded and marked **"DANGER–HOT–DO NOT TOUCH."**

CAUTION

Do not use hoses such as rubber or PVC hose which are not resistant to chemicals or disinfectants or insufficient flexibility. Only use PVC flexible spiral hoses with integrated spiral or hoses of equivalent material.

2.16 Suction Inlet Hose Connection

① Remove the cover of suction inlet and push-in tubing connector in the inlet hole.

② Connect suction inlet hose (Ø32, spiral hose) at tubing connector and tighten with electric insulation tape.

2.17 Waste outlet Hose connection

① Always use spiral hose with 19mm interior diameter
② Connect hose to the outlet hole with clockwise direction
③Please be tighten with hose clip or electric insulation tape.
④ Always be higher position than drainage to prevent backfl

2.18 Exhaust Air Hose connection

- Remove yellow cap from the exhaust air outlet hole.
- Connect exhaust air outlet hose to the hole.

- Always place end of the air outlet hose out of building or window to prevent noisy problem, hot temperature and bad odor.
- Always keep clean water and moisture from end of exhaust air hose (**Be cautious the chance of in-coming water** like rain or vapor due to extension more than 3 meter exhaust air hose.)

2.19 Electrical connection

The mains connection must only be made by well-trained electricians.
To insure safe installation, check local current and voltage. Serious damage may occur to the motor if it is connected improper voltage.

Electrical Shock Hazard

Disconnect electrical power at the circuit breaker or fuse box before installing this product. Install the system in a location where it will not come in to contact with water or other liquids. Install the system in a location protected from the weather.

Electrically ground the system. Failure to follow these instructions can resulting death, fire or electrical shock.

Section 3: Operation

Start Up

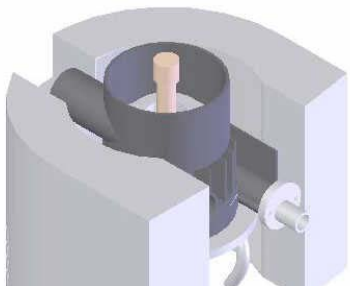
3.10 Check List before start up the system

3.11 Check if there is any foreign material in the cooling fan part of the motor.

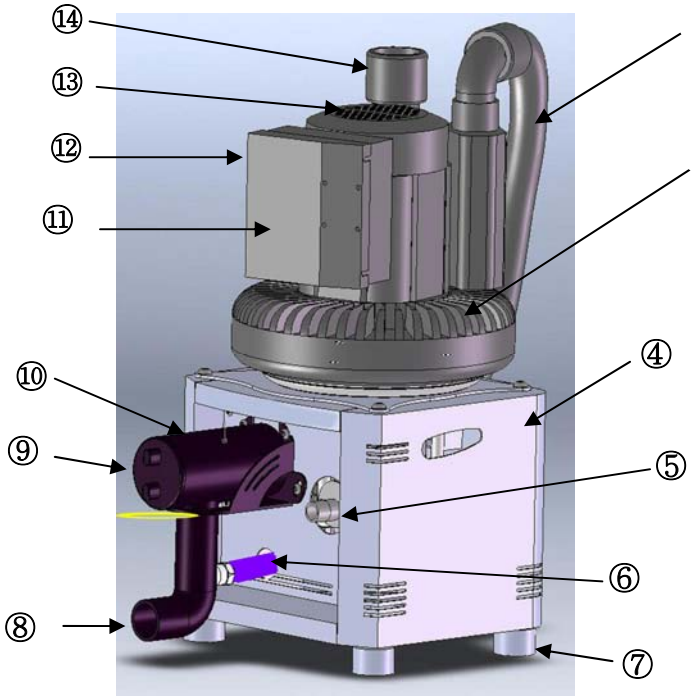
3.12 From the motor side of the system, verify the blower is rotating in the direction of clockwise. On the system powered by a 3-phase electric power, change the connection of any two (2) wires to reverse blower rotation.

3.13 Check any abnormal noise or vibration of the suction system. If this happen, refer to the trouble shooting guide on this manual. After removing causes of the noise and vibration, re-start the system.

Section 4: Product information



4.10 Functional description



(Separation unit)

(Filter part)

1. Vacuum air connection tube **2.Motor Impellor chamber**

3. Air / Liquid Separator **4. Separation unit case**

5. Waste water outlet **6. Auto by-pass drain tubing**

7. Rubber foot **8.Suction Inlet Hole**

9. Filter cover **10. Filter housing**

11. Electric control unit **12. Power Switch**

13. Cooling fan cover **14. Exhaust air outlet**

4.11

Rain3 Model

➢ **Specification**

* Main Voltage (VAC)	230
* Frequency (Hz)	50 / 60
* Electrical Power (Kw)	0.81 / 0.94
* Current consumption (A)	4 / 5
* Vacuum regulated (m bar)	200
* Suction motor rotation speed (rpm)	2,900 / 3,720
* No. of treatment units	1 – 5
* Weight (Kg)	33
* Dimensions (L x W x H)	410 x 520 x 620
* Noise level (db)	65

Section 5: Maintenance

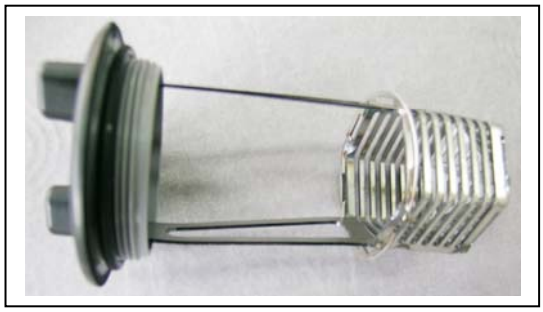
5.10

Cleaning Suction inlet filter

Cleaning procedures of Filter part

Pull out filter part from machine in counter-clockwise direction of cover.

Clean filter in running water for removing particle or debris.
(Recommending it cleaned at least twice per month for avoiding reduction of suction power)



③ Re-connect filter.

CAUTION

If the machine installed into the used suction tubing line, old debris and dirty particle may clogged filter. In case of this, Please clean filter frequently for some period of time until tubing line is cleaned.

5.11

Cleaning Suction Unit

After every treatment – For avoiding bad odor and reducing infection possibility, Clinic should suck 1 glass of water before the next treatment.

After finishing last treatment of the day – For avoiding bad odor and reducing infection possibility, Clinic is be sure to clean suction unit by **NON-FOAMING** cleaning & disinfectant.

CAUTION

DO NOT use a foaming cleaning & disinfectant agent.
It causes backflow of water to the suction motor and can damage it.

Section 6: Disposal

CAUTION

This product may be contaminated after using years.
Please make the disposal organization aware of this In order that they can take the proper safety actions.

Uncontaminated plastic components of the product may be recycled.

The built-in electric circuit board and other electric components should be disposed as electric waste.

Other metal components may be disposed of as metallic waste.

If the product is returned to the local dealer, all connections should be closed so that they are water-tight.

Section 7: Trouble-Shooting Chart

This trouble-shooting is carried out by qualified technicians only.

Problem	Reason	Remedy
Unit does not work	Mains supply is not connected Incorrect electrical connection or power source	Check mains power, fuses and reset circuit breaker if necessary
Unusual noise increased	Solid particle or debris is coming into the suction motor	Dismantle unit an d clean the impeller of the motor
Excessive vibration	Damaged impeller Motor and/or impeller are dirty	Dismantle unit an d clean the impeller of the motor
Unit is very hot	Wrong wiring Low voltage Suction inlet is clogged Operating pressure or vacuum is too high	Check wiring Supply proper voltage Clean primary filter Install a relief valve and pressure or vacuum gauge
Suction is too low	Suction inlet is clogged Leaking problem in the suction plumbing	Clean primary filter Check all suction tubes, hoses. and connections. Replace if necessary
Motor overload	Low voltage	Check power source Check wire size and wire connections

. Warranty

Model : rain3

The warranty starts from the date of our invoice and it’s of 2 years